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| LAHIVE & COCKFIELD, LLP. | | | KIM, CHONG R | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/819,114

Applicant(s)

MCGIBBON ET AL.

Examiner

Charles Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-80 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-80 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date Z.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 6 is objected to because of a typographical error in the phrase “quanternions” in line 1. It appears that the applicant intended the phrase to read “quaternions”. Appropriate correction is required.
2. Claim 54 is objected to because of a typographical error in the phrase “for for processing” in line 12. It appears that the applicant intended the phrase to read “for processing”. Appropriate correction is required.

The following quotation of 37 CFR § 1.75 (d)(1) is the basis of objection:

(d)(1) The claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description. (See § 1.58(a)).

3. Claims 54-80 are objected to under 37 CFR § 1.75 (d)(1) as failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention or discovery.

Referring to claim 54, the phrase “the at least one cluster of markers” in line 6 lacks antecedent basis. It appears that the applicant intended the phrase to read “at least one cluster of markers”. Appropriate correction is required.

Referring to claim 54, the phrase “said configuration data” in lines 11 and 13 lack antecedent basis. It appears that the applicant intended the phrase to read “configuration data”. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 4, 15-18, 22-26, 35-38, 42-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Kunii et al., U.S. Patent No. 5,625,577 (“Kunii”).

Referring to claim 4, Kunii discloses a method for modeling a subject to obtain kinematic and kinetic data, the method comprising the steps of:

- a. representing the subject by at least one body segment (col. 3, lines 5-13)
- b. obtaining image device data from at least two image devices, the body segment captured by the image devices at more than one time (col. 3, lines 20-23)
- c. transforming the image device data into configuration data describing the position and orientation of each of the at least one body segment (col. 3, lines 23-27)
- d. processing the configuration data to obtain kinematic and kinetic data about the subject (col. 3, lines 40-43).

Referring to claim 15, Kunii further discloses that the kinematic data include information regarding motion of the subject (col. 3, lines 40-42), and kinetic data include information regarding at least one torque and a force on the at least one body segment of the subject (col. 3, line 66-col. 4, line 13).

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Referring to claim 16, Kunii further discloses that the kinetic data include information regarding at least one torque and a force exerted at the neck of the subject (col. 4, lines 54-55).

Referring to claim 17, Kunii further discloses that the kinetic data include information regarding at least one torque and a force exerted at the ankle, knee, and hip of the subject (col. 4, lines 54-55).

Referring to claim 18, Kunii further discloses that the force includes a force exerted on the subject by a floor (col. 4, lines 56-59).

Referring to claim 22, Kunii further discloses that the kinematic data include information regarding the head, arms, trunk, and pelvis of the subject for determining the upper body mobility of the subject (col. 8, lines 10-27).

Referring to claim 23, Kunii further discloses that the kinematic data include information regarding the feet, shanks, and thighs of the subject for determining the lower body mobility of the subject (col. 8, lines 10-27).

Referring to claim 24, Kunii further discloses the step of calculating the center of mass of the subject (col. 7, lines 27-31).

Referring to claim 25, see the rejection of at least claim 4 above.

Referring to claim 26, Kunii further discloses at least one cluster of markers for each of the at least one body segment to obtain the image device data (figure 2).

Referring to claim 35, see the rejection of at least claim 15 above.

Referring to claim 36, see the rejection of at least claim 16 above.

Referring to claim 37, see the rejection of at least claim 17 above.

Referring to claim 38, see the rejection of at least claim 18 above.

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Referring to claim 42, see the rejection of at least claim 22 above.

Referring to claim 43, see the rejection of at least claim 23 above.

Referring to claim 44, see the rejection of at least claim 24 above.

5. Claims 45-46, 48, 51, 52, 54-56, 64-70, 78-80 are rejected under 35 U.S.C. 102(b) as being anticipated by Nesbit et al., U.S. Patent No. 5,772,522 ("Nesbit").

Referring to claim 45, Nesbit discloses a body modeling system that includes a user interface for displaying information about movements of a subject, the user interface comprising:

- a. an input facility for loading kinetic and kinematic data of a subject (col. 5, line 65-col. 6, line 51)
- b. an integrated animation facility for displaying an android whose movements are based on the loaded kinetic and kinematic data of the subject (col. 6, line 53-col. 7, line 40 and figure 8)
- c. a plot facility for providing various plots associated with the loaded kinetic and kinematic data (col. 11, lines 10-54 and figures 9-11)
- d. a mathematical facility for performing computational analysis on the loaded kinetic and kinematic data (col. 10, line 59-col. 11, line 54).

Referring to claim 46, Nesbit further discloses that the integrated animation facility provides a volume region to view the android (col. 5, lines 29-34).

Referring to claim 48, Nesbit further discloses that the mathematical facility performs statistical analysis on the kinetic and kinematic data (col. 11, lines 1-54 and figures 9-11).

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Referring to claim 51, Nesbit further discloses that the plot facility provides a form feature for creating a template of plots of any desired kinematic and kinetic data of the subject (col. 11, lines 1-57).

Referring to claim 52, Nesbit further discloses that the plot facility provides a plot page for displaying detailed plots of various elements of the kinetic and kinematic data (figures 10-12).

Referring to claim 54 as best understood, Nesbit discloses a system for modeling a subject to obtain kinematic and dynamic data, the system comprising:

- a. an input stage for obtaining image device data associated with at least one body segment representing the subject (col. 5, line 65-col. 6, line 51)
- b. an array tracking module for transforming the image device data into position and orientation data of at least one cluster of markers (col. 5, line 65-col. 6, line 51 and col. 7, lines 48-61)
- c. a full body modeling module for transforming the position and orientation data of the at least one cluster of markers into position and orientation of the at least one body segment [col. 5, line 66-col. 6, line 9, and col. 7, line 41-col. 8, line 45. Note that the transformed data representing position and orientation data of the at least one cluster of markers will include the transformed data representing position and orientation data of the at least one body segment, since the cluster of markers define the body segment (col. 6, lines 3-9)]
- d. a kinematic analysis module for processing configuration data to obtain kinematic data (col. 5, line 65-col. 6, line 51)

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e. a kinetic analysis module for processing the configuration data to obtain kinetic data (col. 5, line 65-col. 6, line 51)

f. a user interface for displaying the calculated kinematic and kinetic information of the subject (col. 11, lines 1-54 and figures 10-12).

Referring to claim 55, see the discussion of at least claim 8 below.

Referring to claim 56, see the discussion of at least claim 9 below.

Referring to claims 64-66, see the rejection of at least claim 45 above.

Referring to claim 67, see the rejection of at least claim 54 above.

Referring to claim 68, Nesbit further discloses that the image device data is obtained using more than one image device (col. 5, line 66-col. 6, line 2).

Referring to claim 69, see the rejection of at least claim 55 above.

Referring to claim 70, see the rejection of at least claim 56 above.

Referring to claims 78-80, see the rejection of at least claim 45 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 5, 7-9, 11-14, 19, 27-29, 31-34, 39, 57-59, 61-63, 71-73, 75-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kunii et al., U.S. Patent No. 5,625,577 ("Kunii") and Nesbit et al., U.S. Patent No. 5,772,522 ("Nesbit").

Referring to claim 5, Kunii further discloses the steps of:

- a. assigning at least one cluster of markers to each of the at least one body segment (figure 2)
- b. transforming the image device data into position coordinates of the markers (col. 7, lines 1-19).

Kunii does not disclose expressly that the image device data is transformed into three dimensional position coordinates of the markers. However, this feature was exceedingly well known in the art. For example, Nesbit discloses the steps of assigning at least one cluster of markers to each of at least one body segment (col. 4, lines 47-51), transforming image device data into three dimensional position coordinates of the markers (col. 7, lines 48-61), processing the three dimensional position coordinates to obtain the position and orientation of each of the at least one cluster, thereby determining the position and orientation of each of the at least one body segment (col. 5, line 66-col. 6, line 9, and col. 7, line 41-col. 8, line 45).

Kunii & Nesbit are combinable because they are both concerned with determining kinematic and kinetic data of a human subject. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Kunii's position coordinates so that they are three dimensional position coordinates, as taught by Nesbit. The suggestion/motivation for doing so would have been to realistically display the motions of the subject using smooth three dimensional modeling pictures rather than line drawings (Kunii, col. 12, lines 36-39). Therefore,

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it would have been obvious to combine Kunii with Nesbit to obtain the invention as specified in claim 5.

Referring to claim 7, Nesbit further discloses the step of transforming the image device data into position and orientation data of the at least one cluster of markers (col. 5, line 66-col. 6, line 9, and col. 7, line 41-col. 8, line 45), and transforming the position and orientation data of the at least one cluster of markers into position and orientation data of the at least one body segment [col. 5, line 66-col. 6, line 9, and col. 7, line 41-col. 8, line 45. Note that the transformed data representing position and orientation data of the at least one cluster of markers will include the transformed data representing position and orientation data of the at least one body segment, since the cluster of markers define the body segment (col. 6, lines 3-9)].

Referring to claim 8, Nesbit further discloses that the position and orientation data of the at least one body segment is initially determined by a pointer (golf club) [col. 8, lines 60-62].

Referring to claim 9, Nesbit further discloses that the pointer includes a set of markers on a rigid plate (col. 6, lines 7-9).

Referring to claim 11, Nesbit further discloses the step of utilizing antropometric data (weight and height) of a subject to calculate inertial properties of at least one body segment (col. 1, lines 59-67).

Referring to claim 12, Nesbit does not disclose expressly that the inertial properties include the mass of each body segment of the subject.

Kunii discloses the step of calculating inertial properties that include the mass of each body segment of the subject (col. 3, lines 18-20). Therefore, it would have been obvious to combine the teachings of Kunii and Nesbit for the reasons stated above (claim 5).

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Referring to claim 13, Kunii further discloses that the inertial properties include the center of mass of each of the body segment of the subject (col. 3, lines 18-20).

Referring to claim 14, Kunii further discloses that the inertial properties include the moment of inertia of each of the body segment of the subject (col. 9, lines 25-55).

Referring to claim 19, Kunii does not disclose expressly that a power profile and energy expenditure for upper and lower body segments and joints are computed.

Nesbit discloses the step of computing a power profile and energy expenditure for upper and lower body segments and joints (col. 11, lines 62-67 and col. 12, lines 42-48).

Kunii & Nesbit are combinable because they are both concerned with determining kinematic and kinetic data of a human subject. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Kunii's step of processing to include the teachings of Nesbit. The suggestion/motivation for doing so would have been to realistically display the motions of the subject using smooth three dimensional modeling pictures rather than line drawings (Kunii, col. 12, lines 36-39). Therefore, it would have been obvious to combine Kunii with Nesbit to obtain the invention as specified in claim 19.

Referring to claim 27, see the rejection of at least claim 7 above.

Referring to claim 28, see the rejection of at least claim 8 above.

Referring to claim 29, see the rejection of at least claim 9 above.

Referring to claim 31, see the rejection of at least claim 11 above.

Referring to claim 32, see the rejection of at least claim 12 above.

Referring to claim 33, see the rejection of at least claim 13 above.

Referring to claim 34, see the rejection of at least claim 14 above.

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Referring to claim 39, see the rejection of at least claim 19 above.

Referring to claim 57, see the discussion of at least claim 16 above.

Referring to claim 58, see the discussion of at least claim 18 above.

Referring to claim 59, see the rejection of at least claim 19 above.

Referring to claim 61, see the discussion of at least claim 22 above.

Referring to claim 62, see the discussion of at least claim 23 above.

Referring to claim 63, see the discussion of at least claim 24 above.

Referring to claim 71, see the rejection of at least claim 57 above.

Referring to claim 72, see the rejection of at least claim 58 above.

Referring to claim 73, see the rejection of at least claim 59 above.

Referring to claim 75, see the rejection of at least claim 61 above.

Referring to claim 76, see the rejection of at least claim 62 above.

Referring to claim 77, see the rejection of at least claim 63 above.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kunii et al., U.S. Patent No. 5,625,577 ("Kunii") and Nesbit et al., U.S. Patent No. 5,772,522 ("Nesbit"), further in view of Handelman et al., U.S. Patent No. 6,057,859 ("Handelman").

Referring to claim 6, Kunii and Nesbit do not disclose expressly that quaternions are utilized to determine the position and orientation of each of the at least one cluster.

Handelman discloses that quaternions are utilized to determine the position and orientation of each of at least one body segment (col. 21, lines 13-20).

Kunii, Nesbit, and Handelman are combinable because they are all concerned with determining kinematic and kinetic data of a human subject. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify processing step of Kunii and Nesbit, so that quaternions are utilized to determine the position and orientation of each of the at least one cluster, as taught by Handelman. The suggestion/motivation for doing so would have been to compute kinematic problems in real time, while producing human limb movements that appears natural and realistic to the viewer (Handelman, col. 3, lines 24-35). Therefore, it would have been obvious to combine Kunii and Nesbit with Handelman to obtain the invention as specified in claim 6.

8. Claims 10, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kunii et al., U.S. Patent No. 5,625,577 ("Kunii"), Nesbit et al., U.S. Patent No. 5,772,522 ("Nesbit"), and the applicant's admitted prior art ("Admission").

Referring to claim 10, Kunii and Nesbit do not expressly disclose the step of computing motion data by using a Rodrigues vector method to determine joint centers of rotation of at least one body segment.

Admission discloses a step of computing motion data by using a Rodrigues vector method to determine joint centers of rotation of at least one body segment (page 8, lines 13-14).

Kunii, Nesbit, and Admission are combinable because they are all concerned with determining kinematic and kinetic data of a human subject. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify transforming step of Kunii and Nesbit, so that a Rodrigues vector method is used to determine joint centers of rotation

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of at least one body segment, as taught by Admission. The suggestion/motivation for doing so would have been to accurately determine the joint centers of rotation. Therefore, it would have been obvious to combine Kunii and Nesbit with Admission to obtain the invention as specified in claim 10.

Referring to claim 30, see the rejection of at least claim 10 above.

9. Claims 20, 21, 40, 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kunii et al., U.S. Patent No. 5,625,577 ("Kunii") and the text book entitled "FUNDAMENTALS OF PHYSICS" by Halliday et al. ("Halliday").

Referring to claims 20 and 21, Kunii further discloses that Newton's equations are used to calculate motion and force parameters for each segment of the body (col. 9, lines 25-55). However, Kunii does not disclose expressly that the linear and angular momenta associated with the head, arm, trunk, foot, shank, thigh, and pelvis of the subject are computed.

Halliday discloses that the linear and angular momenta were commonly known mathematical expressions based on Newton's equations that represent the force and motion of an object (page 278-279, section 12-5).

Kunii and Halliday are combinable because they are both concerned with determining kinematic and kinetic data of an object based on Newton's equations. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the processing step of Kunii, so that the linear and angular momenta associated with the head, arm, trunk, foot, shank, thigh, and pelvis of the subject are computed, as taught by Halliday. The suggestion/motivation for doing so would have been to provide additional kinematic/kinetic

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information corresponding to the object such that an accurate motion analysis can be obtained (Kunii, col. 5, lines 17-22). Therefore, it would have been obvious to combine Kunii with Halliday to obtain the invention as specified in claims 20 and 21.

Referring to claim 40, see the rejection of at least claim 20 above.

Referring to claim 41, see the rejection of at least claim 21 above.

10. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Nesbit et al., U.S. Patent No. 5,772,522 ("Nesbit") and Buhler et al., U.S. Patent No. 6,326,972 ("Buhler").

Referring to claim 47, Nesbit does not disclose expressly that the integrated animation facility provides complete control of a model view point from any elevation and azimuth. However, this feature was exceedingly well known in the art. For example, Buhler discloses an integrated animation facility that provides complete control of a model view point from any elevation and azimuth (col. 7, lines 46-48).

Nesbit and Buhler are combinable because they are both concerned with modeling the motion of a human subject. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the integrated animation facility of Nesbit, so that it provides complete control of a model view point from any elevation and azimuth, as taught by Buhler. The suggestion/motivation for doing so would have been to enhance the ability to interactively study the biomechanics of the subject (Nesbit, col. 10, line 59). Therefore, it would have been obvious to combine Nesbit with Buhler to obtain the invention as specified in claim 47.

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11. Claims 49-50, 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nesbit et al., U.S. Patent No. 5,772,522 ("Nesbit").

Referring to claim 49, Nesbit does not disclose expressly that the mathematical facility performs time differentiation and integration utilizing the kinetic and kinematic data. However, the Examiner notes that Nesbit's mathematical facility comprises a computer (figure 1). Official notice is taken that it was exceedingly well known for computers to perform time differentiation and integration on data. Therefore, it would have been obvious to perform time differentiation and integration utilizing the kinetic and kinematic data on the computer of Nesbit, in order to provide additional kinematic and kinetic data of the subject, thereby enhancing the analysis of the biomechanics of the subject (Nesbit, col. 10, lines 59-67).

Referring to claim 50, Nesbit does not disclose expressly that the mathematical facility performs digital filtering and Fourier transforms utilizing the kinetic and kinematic data. However, the Examiner notes that Nesbit's mathematical facility comprises a computer (figure 1). Official notice is taken that it was exceedingly well known for computers to perform digital filtering and Fourier transforms on data. Therefore, it would have been obvious to perform digital filtering and Fourier transforms utilizing the kinetic and kinematic data on the computer of Nesbit, in order to provide additional kinematic and kinetic data of the subject, thereby enhancing the analysis of the biomechanics of the subject (Nesbit, col. 10, lines 59-67).

Referring to claim 53, Nesbit further discloses that the plot facility performs various analysis (col. 11, line 1-54), but does not disclose expressly that the plot facility allows zooming of the plots. However, Official notice is taken that zooming of a plot was exceedingly well known in the art. Therefore, it would have been obvious to modify Nesbit's plot facility so that

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it allows zooming of the plots, in order to enhance the study of the biomechanics of the subject (col. 10, line 59).

12. Claims 60 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Nesbit et al., U.S. Patent No. 5,772,522 ("Nesbit") and the text book entitled "FUNDAMENTALS OF PHYSICS" by Halliday et al. ("Halliday").

Referring to claim 60, Nesbit further discloses that Newton's Law is used to calculate motion and force parameters for the subject (col. 7, lines 11-21). However, Nesbit does not disclose expressly that the linear and angular momenta associated with the head, arm, trunk, foot, shank, thigh, and pelvis of the subject are computed.

Halliday discloses that the linear and angular momenta were commonly known mathematical expressions based on Newton's Law that represent the force and motion of an object (page 278-279, section 12-5).

Nesbit and Halliday are combinable because they are both concerned with determining kinematic and kinetic data of an object based on Newton's Law. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the processing step of Nesbit, so that the linear and angular momenta associated with the head, arm, trunk, foot, shank, thigh, and pelvis of the subject are computed, as taught by Halliday. The suggestion/motivation for doing so would have been to provide additional kinematic/kinetic information corresponding to the object such that an accurate motion analysis can be obtained. Therefore, it would have been obvious to combine Nesbit with Halliday to obtain the invention as specified in claim 60.

Referring to claim 74, see the rejection of at least claim 60 above.

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Conclusion

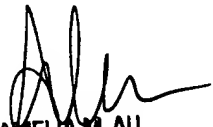
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ck

April 8, 2004


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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600